



Steps in the Micro-hydro Series

1. Understand Micro-hydro
2. Site Assessment
3. Equipment/Installer Selection and Costs
4. Regulations

E³A: Micro-hydropower for the Home, Farm, or Ranch

Introduction

Ever-expanding interest in renewable energy systems, from small wind to solar, has led to a renewed interest in one of the oldest and most established types of renewable energy: hydropower. When most people think of hydropower, they imagine the Hoover Dam or other large-scale installations. Hydroelectricity can also work on a much smaller scale. This module focuses on micro-hydroelectricity (micro-hydro), designed for homeowners and agricultural operators to reduce purchased electricity use, much like a small wind or solar electric system



Courtesy istockphoto.com

1. Do you have access to flowing water on your property?

Although a total drop (head) of as little as three feet can be utilized for a micro-hydropower system, generally a high volume of flow or a head of at least 10 feet are required for a viable system.

- ☐ Yes — Move to question #2
- ☐ No — Consider other renewable energy technologies such as wind energy or photovoltaics (PV) for your property. If you are not sure about how much head your resource has, consult the “Site Assessment” module.
- ☐ Uncertain — Read on to learn more!

2. Does the water resource have adequate flow?

Although low and seasonal (e.g. irrigation) flows can be utilized, the greater the flow the better.

- ☐ Yes — Move to question #3
- ☐ No — Consult the “Site assessment” module to help better estimate your resources, and if it is too small, then consider other renewable energy sources.
- ☐ Uncertain — Read on to learn more!

3. Do you have the legal right to utilize the water?

Under strong Western water laws, simply having water crossing your property does not give the landowner the right to utilize it.

- ☐ Yes — Move to question #4
- ☐ No — You still may be able to proceed, but you will need to consult your state engineer’s office about obtaining a “non-consumptive” use permit.
- ☐ Uncertain — Read on to learn more!



4. Do you have an electric load within one mile of the resource?

The closer the electric load, such as a home or irrigation system, to the hydroelectric resource, the lower the cost and greater the efficiency.

- ☐ Yes — Move to question #5
- ☐ No — You still may be able to proceed, but you will need to more closely evaluate economic feasibility.
- ☐ Uncertain — Read on to learn more!

5. Are you willing to invest money and some maintenance time into a system to generate electricity for your home, farm, or ranch?

Although many micro-hydro systems may present an attractive financial return, especially where they use existing infrastructure such as irrigation civil works, micro-hydropower receives relatively few financial incentives and does require some maintenance.

- ☐ Yes — Let's get started learning more.
- ☐ No — Consider lower cost projects such as energy efficiency improvements.
- ☐ Uncertain — Read on to learn more!

Notes

[illegible]